REMARKS

STATUS OF CLAIMS

In response to the Office Action dated September 12, 2006, claim 5 has been added. Claims 105 are now pending in this application. No new matter has been added.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 103

I. Claims 1 and 4 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Dion-Biro (USPN 2,808,080) in view of Glaros (USPN 3,469,788)

Claims 1-4 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Heimburger (USPN 2,310,633) in view of Dion-Biro.

Claims 1-4 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Fisher (USPN 6,003,787) in view of Dion-Biro.

II. The rejections are respectfully traversed.

Independent claim 1 recites:

> A sterilizing and disinfecting apparatus for spraying a sterilizing and disinfecting chemical including alcohol into a target space, comprising:
> a spray gun having an end nozzle;
> a chemical container containing the chemical, attached to said spray gun;
> a gas cylinder filled with a compressed carbon dioxide gas as a carrier gas;
> a pressure reducing valve, attached near an outlet of said gas cylinder, for decompressing the gas discharged from the outlet to a predetermined pressure; and
> a gas hose directly connected to the pressure reducing valve and the spray gun,
> wherein the spray gun sprays the chemical into the target space by a function of the carrier gas injected from the end nozzle, and
> wherein the spray gun, the end nozzle and the gas hose are set to have dimensions that permit a feed rate of the gas that does not cause said carbon dioxide gas to

freeze due to decompressing in the pressure reducing valve during continuous spray for at least 15 minutes.

The Examiner points out that Dion-Biro (USPN 2,308,080) comprises:

1) a gas cylinder 11 filled with a compressed carbon dioxide gas as a carrier gas;

2) a pressure reducing valve 13 attached near an outlet of said gas cylinder 11; and

3) a gas hose (conduit) 14 directly connected to the pressure reducing valve 13 and a hose 3.

The Examiner reasoning is that claim 1 is obvious because the claimed invention can be attained by using the apparatus of Dion-Biro, as compressed gas source for spray guns, which are described in Glaros (USP 3,469,788), Heimburger (USP 2,310,633), and Fisher (USP 6,003,787).

Upon reviewing Dion-Biro, Applicant agrees that a "cylinder 11 filled with a compressed carbon dioxide gas" and a "pressure reducing valve 13 attached near an outlet of said gas cylinder 11" exist in the arrangement of Dion-Biro. However, in Dion-Biro, the gas cylinder 11 is connected to an upper part of a reservoir 1 by a conduit 14. The reservoir 1 is a container for containing substances to be sprayed (e.g., insecticides, plant-treating products, wood-treating products and fire-extinguishing products - column 1, lines 2 and 3). A hose (flexible hose 3), which is to be attached to a nozzle, is connected to the lower part of the reservoir 1. That is, in the apparatus of Dion-Biro, the conduit 14 does **NOT** connect the pressure reducing valve 13 and the hose 3 directly. Thus, the Examiner's above-noted assertion 3) (a gas hose (conduit) 14 directly connected to the pressure reducing valve 13 and a hose 3) is **INCORRECT**.

In the apparatus of Dion-Biro, carbon dioxide gas is supplied to the upper part of the reservoir 1 via the pressure reducing valve 13 and the conduit 14, and is used for compressing the substance contained in the reservoir 1 from the upper part. By compressing, the substance is forced out to the hose 3 that is connected to the lower part of the reservoir 1, and further ejected from a nozzle, which is not shown in the figures. At that time, the carbon dioxide gas filled in the cylinder 11 **REMAINS** in the upper space within the reservoir 1 and is **NOT** intended to be delivered from the hose 3 connected to the lower part of the reservoir 1. This is apparent from the fact that the cylinder 11 is smaller than the reservoir 1 in size. In order to spray the substance that is forced out to the hose 3 from the reservoir 1 to a target space, a nozzle that is to be attached to the hose 3 should also be attached to an adequate gas source such that a gas (carrier gas) from the gas source is ejected from the nozzle thereby vaporizing the substance.

As discussed above, in the apparatus of Dion-Biro, carbon dioxide gas filled in the cylinder 11 is **NOT** used as a "carrier gas", as recited in independent in the present claim 1. Thus, the Examiner's comment 1) is also incorrect. Furthermore, the flow rate of carbon dioxide gas used for compressing the substance in the reservoir 1 of Dion-Biro is far less than that of the present invention, which is used as a carrier gas. Consequently, even if a nozzle were connected to the hose 3 of Dion-Biro, the invention recited in claim 1, which prevents the carbon dioxide gas from freezing due to the flow rate required for spraying from the nozzle, does not result.

Glaros, Heimburger and Fisher all describe apparatus having a spray gun type nozzle that sprays liquid by action of injection of a carrier gas. However, these references do **NOT** specify the type of compressed gas used as a carrier gas.

In independent claim 1, a sterilizing and disinfecting chemical containing alcohol is to be sprayed. Since such chemical contains alcohol, it could explode via contact with fire when the chemical is sprayed in the form of fine particles. Using carbon dioxide as a carrier gas realizes a spray state wherein chemical particles are covered by carbon dioxide gas so as to avoid contact with fire and thereby preventing an explosion. On the other hand, when carbon dioxide gas is used as a carrier gas, it is likely frozen when supplying the gas from the gas cylinder.

As noted above, the purpose of present claim 1 is to provide an apparatus capable of delivering carbon dioxide in the amount required for spraying without freezing, and spraying a sterilizing and disinfecting chemical containing alcohol. The apparatus in each of Glaros, Heimburger and Fisher is not intended to spray any liquid that may cause an explosion. Therefore, for the apparatus in each of Glaros, Heimburger and Fisher, there is no necessity of using carbon dioxide gas, which likely will be frozen, as a carrier gas for avoiding risk of explosion is not required.

Furthermore, as discussed above, although Dion-Biro uses carbon dioxide gas, this carbon dioxide gas does **NOT** act as a carrier gas, as required by claim 1. Accordingly, the invention recited in claim 1 does not result via any combination of Dion-Biro with Glaros, Heimburger and Fisher. Therefore, independent claim 1, as well as dependent claims 2-4 are patentable over Dion-Biro, Glaros, Heimburger and Fisher, considered alone or in combination, and their allowance is respectfully solicited.

NEW CLAIM

New claim 5 is added and delineates that the chemical in the chemical container is a sterilizing and disinfecting chemical containing alcohol.

UNDUE DELAY IN PROSECUTION

Dion-Biro, as well as Baizer, which was cited in the previous Office Action, uses carbon dioxide gas. However, the apparatus disclosed in both Dion-Biro and Baizer is different from that recited in independent claim 1. As with the Response dated August 24, 2006, claims 1-4 have not been amended. As set forth in 37 CFR 1.104(c)(2):

> In rejecting claims for want of novelty or for obviousness, the examiner ***must cite the best references at his or her command***. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.

As set forth also in M.P.E.P. § 707.07(g) Piecemeal Examination:

> Piecemeal examination should be avoided as much as possible. The examiner ordinarily should reject each claim on all valid grounds available, avoiding, however, undue multiplication of references. (See MPEP § 904.03)

The general premise of "compact prosecution", under which the USPTO examines patent applications, is for the Examiner to read and search an application, issue a first, non-final office action ***citing and applying the best references at his or her command*** if the application is not allowable, for Applicant to file a response with or without amending the claims, and for the Examiner to update the search if necessary and, if the application is still not

allowable, issue a second, final office action with the current references or new references ***that are necessary in view of amendments to the claims***.

However, in the present application, the Examiner has provided a second non-final office action, again rejecting claims 1-4 using a reference disclosing carbon dioxide gas used in an embodiment different from the present invention and references disclosing a spray gun type spraying apparatus. None of references cited in this second, non-final office action was cited in the first office action and the references cited in this second, non-final office action are not considered to be any better than the references cited in the first office action.

Thus, contrary to the admonishment in 37 CFR 1.104(c)(2) and to the spirit of compact prosecution (i.e., to reach issues early so as not to delay prosecution), prosecution of the present application is seemingly being unduly delayed since, given the date of the references cited in this second, non-final office action, all should have been at the command of the Examiner at the time of the first office action. Consequently, prompt closing of prosecution as to the merits of the present application and due consideration of the allowability of claims 1-5 are respectfully solicited.

CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Edward J. Wise (Reg. No. 34,523) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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